

IN THE CLAIMS:

The following listing of claims will replace all prior listings of claims in the application.

1. – 2. (Cancelled)

3. (Currently Amended): A method for assembling a plurality of packet fragments into a packet for transmission by network interface circuitry, the method comprising:

determining at the network interface circuitry that received data is a first packet fragment associated with a first packet;

~~determining that the first packet fragment is associated with a first packet;~~

~~determining that the first packet fragment has a valid checksum;~~

storing the first packet fragment in a reserved buffer space in memory corresponding to the first packet, wherein the reserved buffer space stores one or more different packet fragments associated with the first packet;

determining that the first packet fragment is valid by matching a first checksum included in the first packet fragment with a second checksum included in a second packet fragment stored in the reserved buffer space;

~~starting a timer to measure a time period;~~

sorting the one or more different packet fragments stored in the reserved buffer space based on a fragment number associated with each packet fragment;

determining, at a predetermined time interval, that the one or more different packet fragments associated with the first packet stored in the reserved buffer space constitute all packet fragments associated with the first packet;

combining the one or more different packet fragments associated with the first packet stored in the reserved buffer space to generate the first packet;

and

whether any packet fragment associated with the first packet is missing; and

transmitting the first packet from the network interface circuitry over a network to a receiver.

4. (Cancelled)

5. (Currently Amended): The method, according to claim 3, ~~wherein no packet fragments are missing at the end of the time period, and further comprising the steps of:~~ combining each of the packet fragments in the reserved buffer space to generate the first packet; storing the first packet in a buffer accessible by the network interface circuitry; buffering the first packet in memory accessible by the network interface circuitry; incrementing a counter of the network interface circuitry; determining that a connection table entry associated with the first packet does not exist in the connection table; ~~checking for a connection table entry for the first packet;~~ ~~responsive to non-existence of the connection table entry, sending~~ transmitting the first packet to network interface software for preparing the first packet for the network interface circuitry; ~~the network interface software configured to:~~ ~~generate an address resolution table (ART) index for an address resolution table entry that stores a media access control (MAC) address and MAC layer attributes,~~ ~~build the connection table entry, including the ART index,~~ ~~at least partially process the first packet, and~~ ~~send the first packet as processed to the network interface circuitry;~~ ~~forwarding the first packet from the network interface circuitry;~~ ~~clearing the first packet from the buffer of the first packet responsive to~~ ~~forwarding the first packet;~~ and decrementing the counter.

6. (Previously Presented): The method, according to claim 5, wherein the first packet is a Voice Over Internet Protocol formatted packet or a User Datagram Protocol formatted packet.

7. (Previously Presented): The method, according to claim 5, further comprising the step of generating a total count signal from the buffer, wherein the total count signal indicates to the network interface circuitry whether all the packets sent to the network interface software for processing have been at least partially processed.

8. (Currently Amended): The method, according to claim [[5]] 28, further comprising the step of setting a do not use flag for the connection table entry, wherein the packets subsequent to ~~the first packet an initial received packet for a connection and to creation of the connection table entry are [[sent]] transmitted~~ to the network interface software for processing responsive to the do not use flag being set.

9. (Currently Amended): The method, according to claim [[5]] 28, wherein the first packet is completely processed by the network interface software.

10. (Currently Amended): The method, according to claim [[5]] 28, further comprising the step of completing the processing of the first packet with the network interface circuitry.

11. (Currently Amended): A computer readable medium storing instructions for causing a network interface to assemble a plurality of packet fragments into a packet for transmission by a network interface, by performing the steps of:

determining at the network interface that received data ~~comprise a first is a first~~
~~packet fragment associated with a first packet;~~
~~determining that the first packet fragment is associated with a first packet;~~
~~determining that the first packet fragment has a valid checksum;~~

storing the first packet fragment in a reserved buffer space in memory corresponding to the first packet, wherein the reserved buffer space stores one or more different packet fragments associated with the first packet; determining that the first packet fragment is valid by matching a first checksum included in the first packet fragment with a second checksum included in one of the one or more different packet frames; starting a timer to measure a time period, relative to the first packet; sorting the one or more different packet fragments stored in the reserved buffer space based on a fragment number associated with each of the packet fragments; determining, at a [[the]] predetermined time interval, that the one or more different packet fragments associated with the first packet stored in the reserved buffer space constitute all packet fragments associated with the first packet; combining the one or more different packet fragments associated with the first packet stored in the reserved buffer space to generate the first packet; and whether any packet fragment associated with the first packet is missing; and transmitting the first packet from the network interface over a network to a receiver.

12. (Cancelled)

13. (Currently Amended): The computer readable medium, according to claim 11, wherein no packet fragments are missing at the end of the time period, and further comprising the steps of:

~~combining each of the packet fragments in the reserved buffer space to generate the first packet;~~
~~storing the first packet in a buffer accessible by the network interface circuitry;~~
~~buffering the first packet in memory accessible by the network interface circuitry;~~
incrementing a counter of the network interface circuitry;

determining that an entry associated with the first packet does not exist in the connection table;
checking for a connection table entry for the first packet;
responsive to non-existence of the connection table entry, sending
transmitting the first packet to network interface software for preparing the first
packet for the network interface circuitry; the network interface software
configured to:
generate an address resolution table (ART) index for an address
resolution table entry that stores a media access control (MAC) address and
MAC layer attributes,
build the connection table entry, including the ART index,
at least partially process the first packet, and
send the first packet as processed to the network interface circuitry;
forwarding the first packet from the network interface circuitry;
clearing the first packet from the buffer of the first packet responsive to
forwarding the first packet; and
decrementing the counter.

14. (Previously Presented): The computer readable medium, according to claim 13, further comprising the step of generating a total count signal from the buffer, wherein the total count signal indicates to the network interface circuitry whether all the packets sent to the network interface software for processing have been at least partially processed.

15. (Previously Presented): The computer readable medium, according to claim 13, wherein the first packet is a Voice Over Internet Protocol formatted packet or a User Datagram Protocol formatted packet.

16. (Currently Amended): The computer readable medium, according to claim [[13]]
29, further comprising the step of setting a do not use flag for the connection table entry,

wherein the packets obtained after creation of the connection table entry are sent to the network interface software responsive to the do not use flag being set.

17. (Currently Amended): The computer readable medium, according to claim [[13]]
29, wherein the first packet is completely processed by the network interface software.

18. – 22. (Cancelled):

23. (Currently Amended): A system for assembling a plurality of packet fragments into a packet for transmission from a network interface, the system comprising:

a central processing unit;
a system memory coupled to the central processing unit; and
the network interface coupled to the system memory and the central processing unit, the network interface configured to:

determine ~~determining~~ at the network interface that received data
~~comprises a first~~ is a first packet fragment associated with a first
packet,
~~determining that the first packet fragment is associated with a first packet,~~
~~determining that the first packet fragment has a valid checksum,~~
~~store the first packet fragment in a reserved buffer space in a network~~
~~interface local memory corresponding to the first packet, wherein~~
~~the reserved buffer space stores one or more different packet~~
~~fragments associated with the first packet,~~
determine that the first packet fragment is valid by matching a first
checksum included in the first packet fragment with a second
checksum included in a second packet fragment stored in the
reserved buffer space,
~~start a timer to measure a time period, relative to the first packet,~~
~~sort the one or more different packet fragments stored in the reserved~~
~~buffer space based on a fragment number associated with each of~~
~~the packet fragments,~~

determine, at the end of the time period, a predetermined time interval,
that the one or more different packet fragments associated with the
first packet stored in the reserved buffer space constitute all packet
fragments associated with the first packet,
combining the one or more different packet fragments associated with the
first packet stored in the reserved buffer space to generate the first
packet, and
whether any packet fragment associated with the first packet is missing;
and
transmit transmitting the first packet from the network interface over a
network to a receiver.

24. (Previously Presented): The system, according to claim 23, wherein at least one packet fragment is missing at the end of the time period, and the network interface further configured to clear the reserved buffer space corresponding to the first packet.

25. (Currently Amended): The system, according to claim 23, wherein no packet fragments are missing at the end of the time period, and the network interface further configured to:

~~combine each of the packet fragments in the reserved buffer space to generate the first packet;~~
~~store the first packet in a buffer accessible by the network interface,~~
~~buffer the first packet in the system memory accessible by the network interface circuitry;~~
increment a counter of the network interface circuitry;
determine that an entry associated with the first packet does not exist in the connection table;
~~check for a connection table entry for the first packet;~~
~~responsive to non-existence of the connection table entry, send~~

transmit the first packet to network interface software for preparing the first packet for the network interface; circuitry, the network interface software configured to:
~~generate an address resolution table (ART) index for an address resolution table entry that stores a media access control (MAC) address and MAC layer attributes;~~
~~build the connection table entry, including the ART index,~~
~~at least partially process the first packet, and~~
~~send the first packet as processed to the network interface circuitry;~~
~~forward the first packet from the network interface circuitry;~~
~~clear the first packet from the buffer of the first packet responsive to forwarding the first packet; and~~
decrement the counter.

26. (Cancelled)

27. (Previously Presented): The system, according to claim 25, wherein the network interface is further configured to generate a total count signal from the buffer, wherein the total count signal indicates to the network interface circuitry whether all the packets sent to the network interface software for processing have been at least partially processed.

28. (New): The method, according to claim 5, wherein preparing the first packet for the network interface circuitry includes the steps of:

generating an address resolution table (ART) index for an address resolution table entry based on information stored in the first packet, wherein the address resolution table entry stores a media access control (MAC) address and MAC layer attributes associated with the first packet;
building the connection table entry that stores the ART index;
processing, at least in part, the first packet; and
transmitting the first packet to the network interface circuitry.

29. (New): The computer readable medium, according to claim 13, wherein preparing the first packet for the network interface circuitry includes the steps of:

generating an address resolution table (ART) index for an address resolution table entry based on information stored in the first packet, wherein the address resolution table entry stores a media access control (MAC) address and MAC layer attributes associated with the first packet;

building the connection table entry that stores the ART index;

processing, at least in part, the first packet; and

transmitting the first packet to the network interface circuitry.

30. (New): The system, according to claim 25, wherein the network interface software is configured to:

generate an address resolution table (ART) index for an address resolution table entry based on information stored in the first packet, wherein the address resolution table entry stores a media access control (MAC) address and MAC layer attributes associated with the first packet;

build the connection table entry that stores the ART index;

process, at least in part, the first packet; and

transmit the first packet to the network interface circuitry.